Greenhouse Gas Benchmark Rule (Demand Side Abatement) No. 3 of 2003

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1   Name and commencement

1.1   This Rule is the *Greenhouse Gas Benchmark Rule (Demand Side Abatement) No. 3 of 2003* and commences on 11 June 2004.

1.2   At its commencement, this Rule amends the *Greenhouse Gas Benchmark Rule (Demand Side Abatement) No. 3 of 2003* that commenced on 3 October 2003 (Previous Rule), to the extent that this Rule differs from the Previous Rule.

1.3   Without limiting the circumstances in which this Rule applies, this Rule applies to:

(a)   the accreditation of Abatement Certificate Providers (in respect of demand side abatement activities) after the commencement of this Rule (regardless of the date of application for accreditation);

(b)   the calculation and creation of New South Wales Greenhouse Abatement Certificates (NGACs) (in respect of demand side abatement activities) registered after the commencement of this Rule (regardless of the date of accreditation of the Abatement Certificate Provider), subject to clauses 1.4 and 1.5; and

(c)   the ongoing eligibility of a person to remain accredited as an Abatement Certificate Provider for the purpose of the Scheme Administrator exercising its powers under the Act and Regulations, after the commencement of this Rule, to vary, suspend or cancel a person's accreditation as an Abatement Certificate Provider (in respect of demand side abatement activities).

1.4   A person who, before 31 December 2004:

(a)   is accredited as an Abatement Certificate Provider (in respect of demand side abatement activities); or

(b)   has made an application, acceptable to the Scheme Administrator, to become an Abatement Certificate Provider (in respect of demand side abatement activities), and is subsequently accredited as an Abatement Certificate Provider under this Rule pursuant to that application,

may elect (such election to be made only once) to calculate its entitlement to create NGACs in respect of demand side abatement activities occurring on or before 31 December 2004 under either the Previous Rule or this Rule.

1.5   A person who, on or before 31 December 2004, is accredited as an Abatement Certificate Provider (in respect of demand side abatement activities) may calculate its entitlement to create NGACs in respect of demand side abatement activities occurring on or before 31 December 2007 using the 30% default factor under Equations 13 and 16 of the *Gas Benchmark Rule (Generation) No. 2 of 2003* which commenced on 3 October 2003, rather

than the default factor under those Equations of that Rule as amended since that date, if the person would otherwise have been entitled to use that 30% default factor under the Previous Rule.

1.6   If a person to whom clause 1.4 or 1.5 applies is accredited as an Abatement Certificate Provider after the commencement of this Rule, the Scheme Administrator must assess the application for accreditation using the eligibility criteria under this Rule.

2   Objects of the Rule

The object of this Rule is to provide specific arrangements for the creation and calculation of NGACs where greenhouse gas emissions are reduced through increased efficiency of electricity consumption, eligible on-site electricity generation, and substitution of sources of energy for electricity or substitution of electricity for other sources of energy. The Rule aims to reduce greenhouse gas emissions through measures associated with the demand for electricity.

3   Application of the Rule

Without limiting the persons to whom this Rule applies, this Rule applies to Abatement Certificate Providers accredited to create NGACs in respect of Demand Side Abatement in accordance with Part 8A Division 4 of the Act, the Regulations and this Rule.

4   Status and Operation of the Rule

This Rule is a Greenhouse Gas Benchmark Rule made under Part 8A of the Act.

5   Eligibility to be an Accredited Abatement Certificate Provider in respect of Demand Side Abatement

A person is eligible to be an Accredited Abatement Certificate Provider under this Rule if:

(a)   the person is an *Abator*, as that term is defined in clause 8.1; and

(b)   the accreditation is in respect of *Demand Side Abatement*, as that term is defined in clause 7.

Note: Under the Regulations, a person must also have record keeping arrangements with respect to the activity approved by the Scheme Administrator. Further matters must also be satisfied under the Regulations if the accreditation is in respect of a proposed (rather than existing) Demand Side Abatement Project.

6   Persons eligible to create NGACs under this Rule

6.1   Despite any other provision in this Rule only Accredited Abatement Certificate Providers accredited for the purpose set out in clause 5 may create NGACs under this Rule.

6.2   A person may not create NGACs in respect of greenhouse gas abatement if that person or another person has previously validly created NGACs or LUACs in respect of the same abatement, whether under this Rule, the Previous Rule or any other Benchmark Rule.

7   Activities that constitute Demand Side Abatement

7.1   *Demand Side Abatement* as defined in this Rule is:

      (a)   an "activity" for the purposes of the Act;

      (b)   an "existing demand side abatement activity" for the purposes of the
Regulations if a person is accredited as an Abatement Certificate Provider in
respect of that *Demand Side Abatement* before the Implementation Date of
the *Demand Side Abatement Project* giving rise to it; and

      (c)   a "proposed demand side abatement activity" for the purposes of the
Regulations if a person is accredited as an Abatement Certificate Provider in
respect of that *Demand Side Abatement* before the Implementation Date of
the *Demand Side Abatement Project* giving rise to it.

7.2   *Demand Side Abatement* is the ongoing operation of the changes implemented by a Demand
Side Abatement Project that promotes a reduction in greenhouse gas emissions.

7.3   *Demand Side Abatement* does not include any reduction in greenhouse gas emissions prior to
1 January 2003, regardless of the Implementation Date of the *Demand Side Abatement
Project*.

7.4   *Demand Side Abatement Project* is a project:

      (a)   implemented or to be implemented in New South Wales;

      (b)   which has or will have an Implementation Date on or after:

            (i)   1 January 2002;

            (ii)   1 January 1997 in respect of an activity that was validly claimed as
Electricity Sales Foregone under the Emissions Workbook;

            (iii)   1 January 1997 in respect of a Generating System that generates
electricity using Renewable Energy Sources; or

            (iv)   1 July 1997 in respect of a Generating System having a nameplate
rating of 30MW or less that generates electricity using Fossil Fuels;
and

      (c)   that results or will result in reduced greenhouse gas emissions compared with
the greenhouse gas emissions without that project by:

            (i)   modifying Installations or usage of Installations (including installing
additional components) resulting in a reduction in the consumption
of electricity compared to what would have otherwise been
consumed;

            (ii)   replacing an Installations with another Installation or Installations
that consume less electricity;

            (iii)   installing New Installation that consumes less electricity than other
Installations of the same type, function, output or service;

(iv)   substituting an Installation using other sources of energy for an Installation using electricity, or substituting an Installation using electricity for an Installation using other sources of energy; or

(d)   substituting electricity from a Generating System for electricity from another source, to supply End-User Equipment within the same End-User Complex as the Generating System.

7.5   For the purposes of clause 7.4, the Scheme Administrator may in its discretion determine whether a project that involves multiple Installations or occurs across multiple Sites constitutes one or more Demand Side Abatement Projects.

7.6   The Scheme Administrator may determine whether a Demand Side Abatement Project which was previously claimed as Electricity Sales Foregone, but which has in some manner changed since it was so claimed:

(a)   constitutes the same Demand Side Abatement Project as was previously claimed; or

(b)   also includes a new Demand Side Abatement Project to the extent of the change,

having regard to whether the classification as one or more Demand Side Abatement Projects produces outcomes consistent with the objects of the Scheme.

7.7   Demand Side Abatement Projects do not include activities:

(a)   of electricity supply by a retail supplier, or electricity purchase from a retail supplier by a customer, from the NSW Electricity Network, under a representation by the retail supplier that there is a reduction in greenhouse gas emissions because the electricity supplied is connected with, or represents an amount equal to, the generation of electricity from a particular energy source;

Note: This is intended to exclude from this Rule the creation of NGACs because of the purchase of electricity under "Green Power" accredited or similar schemes that is eligible to create NGACs or RECs at the point of generation.

(b)   within the NSW Electricity Network to reduce losses in the distribution or transmission of electricity;

Note: No Rules covering reduced losses in the NSW Electricity Network from activities within the NSW Electricity Network are being developed at this stage. Reduced losses from Demand Side Abatement by improving the power factor of a Site can be claimed using the Project Impact Assessment Method in clause 9.

(c)   to install solar hot water heating systems that are eligible to create RECs; or

(d)   that reduce electricity consumption by reducing the scope or quantity of production or service derived from the use of that electricity.

Note: Reduced energy consumption not due to specific actions to improve efficiency or other eligible activities does not qualify as a Demand Side Abatement Project. Mild weather, lower production, closing down part of a site, or reducing the quality or quantity of service derived from the use of that electricity do not qualify as Demand Side Abatement Projects.

Reducing electricity consumption where there is no negative effect on production or service levels (eg reduction of excessive lighting or the installation of more energy efficient equipment) is Demand Side Abatement and is not excluded by this clause.

8   Creation of NGACs from Demand Side Abatement

8.1   The Abator

8.1.1   The *Abator* is:

(a)   the person who is:

(i)   in respect of a Demand Side Abatement Project whose Implementation Date is prior to 1 July 2002 for which a retail supplier previously claimed Electricity Sales Foregone, that retail supplier;

(ii)   in respect of a Demand Side Abatement Project that is a Generating System which has an Implementation Date prior to 1 January 2002 (other than those for which a retail supplier previously claimed Electricity Sales Foregone), the "Generator" as defined under the Generation Rule with respect to that Generating System (as if that definition formed part of this Rule); or

(iii)   in respect of any other Demand Side Abatement Project, contractually liable (or otherwise liable if there is no contract) to pay for the energy consumed by End-User Equipment in the Installation or Site that is the subject of the Demand Side Abatement Project at the Implementation Date of the Demand Side Abatement Project ; or

Note: Where confusion exists, the Abator in (iii) above is the retail or wholesale customer that is named in the contract, or if no contract exists is liable (by statute, convention or otherwise) to pay the electricity charges derived from a meter with a National Meter Identifier (NMI) in the National Electricity Market.

(b)   a person nominated, to the satisfaction of the Scheme Administrator, to be the Abator in respect of the Demand Side Abatement (nominee) by one of the following persons (nominator):

(i)   the person in (a); or

(ii)   a person previously nominated to be the Abator,

provided that:

(iii)   the nominator has not previously nominated another person to be the Abator, or if the nominator has done so, that previous nomination is not still effective;

(iv)   the nomination is in writing and signed by the nominator; and

(v)   the nominee consents to the nomination; or

(c)   a person whom the Scheme Administrator is satisfied will be a person in (a) or (b), provided that the person will not be entitled to create NGACs unless that person satisfies that criteria at the Implementation Date of the Demand Side Abatement Project.

8.1.2   Without limiting clause 8.1.1(c), in relation to a Demand Side Abatement Project in which the person seeking accreditation proposes to be nominated by multiple persons to be the Abator in relation to multiple Installations and/or Sites, the person is eligible to be accredited in respect of that project even if not all of the nominations have been made as at the date of accreditation, provided that:

(a)   the Scheme Administrator approves the form of the nomination and the process by which nomination forms are signed; and

(b)   the accreditation in relation to each Installation or Site, and the right to create NGACs in relation to them, only comes into effect upon each respective nomination being made.

Note: Section 97ED(1) of the Act provides that the creation of an NGAC must be registered with the Scheme Administrator for the NGAC to have effect. Section 97ED(4) provides that NGACs are registered with the Accredited Abatement Certificate Provider creating them (that is, the Abator) as the owner.

8.2   Number of NGACs that may be created from Demand Side Abatement

In respect of any Demand Side Abatement, the Abator may create the *Number of NGACs* calculated using:

(a)   the Project Impact Assessment Method in clause 9;

(b)   the Metered Baseline Method in clause 10;

(c)   the Default Abatement Factors Method in clause 11; or

(d)   the Generation Emissions Method in clause 12,

provided that:

(e)   the Scheme Administrator approves the method used (being one of the methods in (a) to (d)) before any NGACs are created using that method (which approval may be conditional upon applying the method in a particular manner that is permitted under this Rule);

(f)   the method used must produce a result reasonably reflecting the extent to which emissions are abated for the Demand Side Abatement undertaken;

(g)   assumptions used in that calculation are reasonable and follow common engineering practice;

(h)   those NGACs are reasonably attributable to the Demand Side Abatement in respect of which the calculation is made;

(i)   in the case of the Project Impact Assessment Method (other than in the case of NGACs brought forward under clause 8.3), the Metered Baseline Method or the Generation Emissions Method, the time period over which those NGACs are calculated must reasonably reflect to the satisfaction of the Scheme Administrator the time period over which greenhouse gas emissions are abated by the Demand Side Abatement in respect of which the calculation is made;

(j)   in the case of NGACs brought forward under clause 8.3, the Scheme Administrator considers that the Demand Side Abatement in respect of which those NGACs are created is reasonably likely to occur during the time period by reference to which those NGACs were calculated;

(k)   the calculation includes only greenhouse gas emissions attributable to the consumption or combustion of energy sources classified as stationary energy sources in the National Greenhouse Gas Inventory Methodology; and

(l)   emissions or emission reductions due to energy sources other than electricity are only included in the calculations in respect of Demand Side Abatement Projects that substitute other energy sources for electricity, or electricity for other energy sources, or are consumed in Generating Systems that supply End-User Equipment within the same End-User Complex as the Generating System.

8.3   Creation of up to 2000 NGACs able to be brought forward using the Project Impact Assessment Method

Note: Section 97EC(1) of the Act provides that any NGACs may be created immediately after the activity in respect of which it was created takes place. Under this Rule, the relevant "activity" is the Demand Side Abatement; that is, the ongoing effects of a Demand Side Abatement Project. Therefore each NGAC may be created immediately after the reduction in greenhouse gas emissions represented by that NGAC occurs.

However, section 97EC(3) and (4) provides that in certain circumstances the date Demand Side Abatement is deemed to have occurred (for the purpose of NGAC creation) can be brought forward. To reduce transaction costs associated with creating NGACs for smaller projects the Abator may elect to bring forward the creation of up to 2000 NGACs.

When all of any Demand Side Abatement previously brought forward to create NGACs in respect of a Demand Side Abatement Project has actually occurred, another tranche of up to 2000 NGACs can be created, up to the lifetime Demand Side Abatement of the project.

This section does not prevent claims for more than 2000 NGACs in respect of abatement that has already occurred. That is, larger projects abating more than 2000 tonnes of CO_2-e per annum may still claim the entire amount each year, after the abatement has occurred.

8.3.1   For the purposes of section 97EC of the Act, if the number of NGACs entitled to be created and calculated using the Project Impact Assessment Method in respect of any single Demand Side Abatement Project is equal to or less than 2000 per annum, then the Abator may elect for the Demand Side Abatement that gives rise to the entitlement to create the number of NGACs determined in accordance with clause 8.3.2 to be deemed to have occurred (for the purpose of

the entitlement to create NGACs but not for any other purpose) on a date determined in accordance with clause 8.3.3.

8.3.2   The maximum number of NGACs that can be created per annum as a result of Demand Side Abatement being deemed to have occurred on a date determined under clause 8.3.3 is the lesser of :

   (a)   2000; or

   (b)   the remaining lifetime number of NGACs entitled to be created in respect of the Demand Side Abatement Project, where such number is determined, to the satisfaction of the Scheme Administrator, with reference to:

      (i)   the number of NGACs that are otherwise eligible to be created over a given period, determined in accordance with this Rule and to the satisfaction of the Scheme Administrator; and

      (ii)   any likely performance degradation of the Installation that will tend to result in greenhouse gas emissions abated in one period being lower than greenhouse gas emissions abated in preceding periods of equal duration; and

      (iii)   the expected lifetime of the Installation, taking into account the characteristics of the equipment, its usage, typical frequency of replacement, and the use of the Site and Installation remaining the same.

8.3.3   The date on which the Demand Side Abatement is deemed to occur under clause 8.3.1 is the latter of:

   (a)   1 January 2003; or

   (b)   the Implementation Date of the Demand Side Abatement Project; and

   (c)   the first date by which all of any Demand Side Abatement previously brought forward under clause 8.3.1 to create NGACs in respect of the same Demand Side Abatement Project has actually occurred.

8.4   Adjustment of number of NGACs that may be created for GGAP funded projects

Despite any other provision in this Rule, if on or after 1 January 2003 approval for GGAP funding has been granted for a project, the maximum number of NGACs that an Accredited Abatement Certificate Provider can create under this Rule from the number of tonnes of carbon dioxide equivalent of greenhouse gas emissions abated by the project equals the percentage of the total number of NGACs that it is otherwise entitled to create under this Rule from that project corresponding to the percentage of project funding that is not provided by GGAP.

Note: For example, if GGAP funding represents 20% of total project funding, then the Accredited Abatement Certificate Provider can only create NGACs for 80% of the eligible abatement achieved.

9   Project Impact Assessment Method

Note: The Project Impact Assessment Method determines the number of NGACs an Accredited Abatement Certificate Provider is entitled to create on the basis of an engineering assessment of only the equipment, process, or system that is the subject of Demand Side Abatement.

The Project Impact Assessment Method is most appropriate when abatement is small compared to site electricity consumption, unexplained variation in baseline energy consumption is high, or baseline energy consumption data for the site is unavailable.

Reduced energy consumption from energy sources other than electricity is only to be used in these calculations where it is a result of a fuel substitution or on-site generation project that is part of the Demand Side Abatement Project.

9.1   Number of NGACs under the Project Impact Assessment Method

Using the Project Impact Assessment Method, *Number of NGACs* is calculated using **Equation 1**.

Equation 1

Number of NGACs = Emissions Abated x Confidence Factor

Where:

- *Number of NGACs* is in t CO_2-e abated
- *Emissions Abated* (in t CO_2-e) is calculated in **Equation 2**
- *Confidence Factor* depends on the type of engineering assessment performed under clause 9.2 and is assigned to the calculation according to clause 9.3

Equation 2

Emissions Abated = Reduced Energy Consumption x Emissions Coefficient

If the consumption of more than one energy source is affected by Demand Side Abatement, Emissions Abated must be calculated for each energy source and totalled, according to the formula:

$$\text{Emissions Abated} = \sum_{S} \text{Reduced Energy Consumption}_s \text{ x Emissions Coefficient}_s$$

Where:

- *Emissions Abated* is in t CO_2-e
- *Reduced Energy Consumption* is the extent to which the energy consumption of the equipment, process, or system is as a consequence of Demand Side Abatement different to what it otherwise would have been and is to be calculated in accordance with the engineering assessment in clause 9.2
- *Emissions Coefficient* is:
  - for electricity supplied from a Transmission System or Distribution System, the NSW Pool Coefficient determined by the Tribunal in accordance with the Compliance Rule. For electricity supplied from a Distribution System rather than from a Transmission System, this is to

> be multiplied by Average Distribution Loss Factor set out in Table 4 of Schedule A to this Rule; or
> - for other energy sources, the Carbon Dioxide Emissions Factor for that Energy Source and its Application/Usage set out in **Table 2** of Schedule A to this Rule or another value acceptable to the Scheme Administrator.
> - *S* is each source of energy affected by the Demand Side Abatement
> - Units used for each energy source, and the emissions coefficient applicable to each energy source, should be appropriate for that energy source. The units should be MWh for electricity, or GJ for most other energy sources.

9.2 Engineering assessment of Reduced Energy Consumption

Accredited Abatement Certificate Providers choosing to use the Project Impact Assessment Method in respect of any Demand Side Abatement are for the purposes of **Equation 2** to calculate the Reduced Energy Consumption of only the equipment, process, or system the subject of Demand Side Abatement using an engineering assessment or model:

(a) that uses reasonable assumptions and generally accepted engineering methods, models, and formulae;

(b) in which the methods, models and formulae used to assess the Demand Side Abatement are chosen by the Accredited Abatement Certificate Provider, but the assessment is assigned a Confidence Factor under clause 9.3 reflecting the accuracy of the engineering assessment conducted;

(c) that takes account of:

(i) the consumption of the existing equipment, systems or processes, or for the purposes of clause 9.4 a typical New Installation thereof that represents the best existing Installation of that type as described in that section, compared with its replacement;

(ii) the performance of the equipment, systems or processes, including degradation over time;

(iii) the operating characteristics of the equipment, systems or processes, including hours of use, degree of loading, usage, operating patterns and behaviour, ambient conditions and any other relevant factors; and

(iv) any of the default factors set out in Tables 3a, 3b or 3c of Schedule A to this Rule if the variable that the value represents is relevant to the assessment or, if the Accredited Abatement Certificate Provider proposes to use a different value for the same purpose, other values acceptable to the Scheme Administrator.

9.3 Confidence Factor

The *Confidence Factor* is:

(a) 1.0, if the engineering assessment determines energy consumption to a high level of accuracy based on logged or equivalent data from the Installation such as:

(i)   hours of operation for the Installation determined from measurements taken over time or other logged data, or a simpler method where this yields an equivalent level of accuracy;

(ii)   allowances for any variance in input characteristics and usage, degree of loading, or output characteristics for the Installation over time determined from measurements or other logged data, or a simpler method where this yields an equivalent level of accuracy;

(iii)   operating environment and ambient conditions over time for the Installation determined from measurements or other logged data, or a simpler method where this yields an equivalent level of accuracy;

(iv)   Installation characteristics using a full performance curve from manufacturers' or measured data, or a simpler method where this yields an equivalent level of accuracy; and

(v)   performance degradation of the Installation over time using detailed calculations and manufacturers' or measured degradation characteristics, or a simpler method where this yields an equivalent level of accuracy,

(including where the engineering assessment relies upon default factors from Tables 3a, 3b or 3c of Schedule A to this Rule),

or, if the engineering assessment does not meet the level of accuracy corresponding with those criteria:

(b)   0. 9, if the engineering assessment determines energy consumption to a lesser level of accuracy from that described in (a), based on estimations from logged data, records or equivalent data such as:

(i)   hours of operation for the Installation estimated from records, or a simpler method where this yields an equivalent level of accuracy;

(ii)   allowances for any variance in input characteristics and usage, degree of loading, or output characteristics for the Installation over time estimated from records, or a simpler method where this yields an equivalent level of accuracy;

(iii)   operating environment and ambient conditions over time estimated for the Installation from records or average measurements, or a simpler method where this yields an equivalent level of accuracy;

(iv)   Installation characteristics taking account of performance at full and part load or discrete operating modes, or a simpler method where this yields an equivalent level of accuracy; and

(v)   estimates of performance degradation of the Installation over time using manufacturers' or other representative degradation characteristics, or a simpler method where this yields an equivalent level of accuracy,

or, if the engineering assessment does not meet the level of accuracy corresponding with those criteria:

(c)   0.8.

9.4   New Installations other than New Office Buildings to be better than best existing installation

For New Installations other than New Office Buildings, before being entitled to create NGACs under clause 8.2(a) an Accredited Abatement Certificate Provider must demonstrate to the Scheme Administrator by reference to:

(a)   any benchmarking or performance indicators established and published by a body recognised by the Scheme Administrator, including industry associations;

(b)   the type of equipment, process, or system and level of consumption considered typical for new installations, taking into account recent installations of this type of equipment, process, or system and Australian and global developments in technology; and

(c)   the type of improved equipment, process, or system proposed to be installed and the level of energy consumption,

that the Number of NGACs calculated are only in respect of greenhouse gas emissions per unit of output or service below the greenhouse gas emissions per unit of output or service from a comparable Installation having:

(d)   the lowest greenhouse gas emissions per unit of output or service from energy consumption of all existing Installations having the same function, output or service:

(i)   in New South Wales; or

(ii)   if there is no such Installation in New South Wales, in Australia; or

(e)   if there is no value that can be determined under (d), a level of greenhouse gas emissions per unit of output or service determined by the Scheme Administrator.

10   Metered Baseline Method

Note: The Metered Baseline Method uses measurements of energy consumption "before" the Demand Side Abatement Project takes place to establish a "baseline" energy consumption standard for the Site being considered. The same measurements performed "after" Demand Side Abatement measures have commenced will establish new levels of energy consumption, with the difference representing the impact of the abatement measures.

Emissions Abated are adjusted by a Confidence Factor that is calculated based on the size of the abatement relative to the unexplained variance in the baseline.

The Metered Baseline Method relies on the remainder of the Site operating as it did before the Demand Side Abatement Project was implemented. Where changes other than the Demand Side Abatement Project will affect metered consumption, the results will not reasonably reflect the abatement due to the Demand Side Abatement Project, and NGACs cannot be created using the Metered Baseline Method. Consequently, the Metered Baseline Method should not be used where changes other than the Demand Side Abatement Project have taken place during the baseline period, or are anticipated during the life of the Demand Side

Abatement Project for which NGACs will be claimed. This does not prevent additional Demand Side Abatement Projects at the same Site from being implemented and assessed against the original baseline.

10.1 The Metered Baseline Method in this clause 10 may only be used to calculate *Number of NGACs* if measurements made pursuant to this clause 10 are of a standard and duration enabling the *Number of NGACs* to be determined to a level of accuracy satisfactory to the Scheme Administrator.

10.2 Using the Metered Baseline Method, *Number of NGACs* is calculated under:

(a) clause 10.5, using a baseline per unit of output;

(b) clause 10.6, using a baseline unaffected by output;

(c) clause 10.7, using a normalised baseline; or

(d) clause 10.8, using a baseline normalised by means of a methodology adapted from the Australian Building Greenhouse Rating Scheme,

provided that all of the NGACs that the Accredited Abatement Certificate Provider seeks to create in respect of Demand Side Abatement can reasonably be attributed to the corresponding abatement.

10.3 The period over which any baseline is determined under this clause 10, using energy measurements before the Implementation Date of the Demand Side Abatement Project, must include 1 or more periods preceding the implementation of the Demand Side Abatement Project, but after 1 January 1997, excluding any time periods that are not representative of normal operating Site consumption due to factors including plant shutdown or major maintenance. The time periods used to determine the baseline must be acceptable to the Scheme Administrator.

10.4 The Abatement Certificate Provider must use utility meters or other metering equipment acceptable to the Scheme Administrator.

Note: Sub-metering may be used to effectively reduce the size of the Site considered for baseline calculations, thereby increasing abatement relative to the baseline and hence the confidence factor.

10.5 Baseline per unit of output

Note: This Metered Baseline Method is most appropriate where consumption is strongly linked to output (for example, in aluminium smelting). Where the relationship is non-linear, or there are multiple products or changes in raw materials affecting consumption, another method of normalising the baseline should be used.

Increased or decreased consumption of energy sources other than electricity should only be included where the change in the consumption of that energy source is directly related to the Demand Side Abatement Project (that is for fuel substitution and generation projects). Reductions in consumption of other sources of energy that are not related to projects that primarily reduce emissions from electricity consumption are not included.

Number of NGACs may be calculated using **Method 1**, provided that:

(a)   the consumption of all energy sources for the Site are linear functions of output;

(b)   Fixed Energy Consumption, which is the energy consumption of the Site that does not vary with variations in output, can be measured or estimated;

(c)   output has not changed by more than 50% from the average output over the period during which the *Variable Energy Baseline* was measured, and

(d)   the *Variable Energy Baseline* is calculated using data from periods immediately preceding the Implementation Date of the Demand Side Abatement Project, up to a maximum of 5 years, but after 1 January 1997, and excluding any periods after the Implementation Date of the Demand Side Abatement Project that are not representative of long term Site consumption due to factors including plant shutdown or major maintenance. Where this is not possible, due to data unavailability or other reasons, a baseline may be set using other periods acceptable to the Scheme Administrator.

Method 1

Step (1)

Select a *Measurement Period* acceptable to the Scheme Administrator, that will be the duration of time over which all measurements in this Method will be taken and that is:

(a)   a minimum of one day and a maximum of one year; and

(b)   if there is a regular cycle to the consumption of energy sources on the Site, an integer multiple of the period of that cycle.

Step (2) Determine *Emissions Abated$_s$* for each energy source, S, affected by the Demand Side Abatement Project by repeating Steps (2A) to (2G) for each energy source, and for each time period T_a by reference to which the Abator seeks to create NGACs by repeating Steps (2E) to (3) for each such period..

Step (2A)

The *Fixed Energy Consumption* (in MWh or GJ) is the consumption of energy source, S, for the Site that does not vary with variations in output, and is:
- determined by estimating or extrapolating from measurements taken during plant downtime or estimated or determined mathematically from multiple periods;
- a reasonable reflection of the consumption unaffected by output, and will lead to emissions abated calculations that are reasonable, and
- over a period before Demand Side Abatement commences and the duration of which is equal to the Measurement Period.

Step (2B)

Calculate *Variable Consumption$_{Tb}$* (in MWh / unit of output or GJ / unit of output) for *n* time periods *Tb*:

(Total Consumption$_{Tb}$ – Fixed Energy Consumption) / Output $_{Tb}$

Where:

- *Tb* denotes a time period, before the Implementation Date of the Demand Side Abatement Project, the duration of which is equal to the Measurement Period, and where each time period is mutually exclusive with each other such time period
- *Total Consumption$_{Tb}$* (in MWh or GJ) is the consumption of energy source, S, for the Site measured by metering that consumption over each time period Tb
- *Output$_{Tb}$* is the number of units of output during each time period Tb
- *n* is the number of time periods, Tb, where *n* must be at least 1

Step (2C) Calculate *Variable Energy Baseline* (in MWh / unit of output or GJ / unit of output):

$$\{\sum_{T=1}^{n} \text{Variable Consumption}_{Tb}\} / n$$

Step (2D) Calculate *Baseline Variability* (in MWh / unit of output or GJ / unit of output), which is the unexplained variance in the baseline, as:

- where n > 2:

  Baseline Variability = (Maximum Variable Consumption$_{Tb}$ – Minimum Variable Consumption$_{Tb}$) / 2

- where n ≤ 2:

  Baseline Variability = 10% of Variable Energy Baseline

Where:

- *Maximum Variable Consumption$_{Tb}$* is the value for Variable Consumption$_{Tb}$ that is the greatest of all *n* time periods *Tb*
- *Minimum Variable Consumption$_{Tb}$* is the value for Variable Consumption$_{Tb}$ that is the lowest of all *n* time periods *Tb*

Step (2E) Calculate *Reduced Energy Consumption* (in MWh or GJ) for each time period T$_a$ by reference to which the Abator seeks to create NGACs:

  (Output$_{Ta}$ x Variable Energy Baseline + Fixed Energy Consumption) - Total Consumption$_{Ta}$

Where:

- *Ta* denotes a time period, after the Implementation Date of the Demand Side Abatement Project, the duration of which is equal to the Measurement Period
- *Total Consumption$_{Ta}$* (in MWh or GJ) is the consumption of energy source, S, for the Site measured by metering that consumption over a time

period Ta
- $Output_{Ta}$ is the number of units of output during the time period Ta.

Step (2F) Calculate *Confidence Factor*:

Confidence Factor = 1 - (Baseline Variability / Variable Energy Baseline)

Step (2G) Calculate Emissions *Abated$_s$* (in t CO_2-e) for each time period T_a by reference to which the Abator seeks to create NGACs:

Emissions Abated$_s$ = Reduced Energy Consumption x Confidence Factor x Emissions Coefficient$_s$

Where:

- *Emissions Coefficient$_s$* is:
  - for electricity supplied from a Transmission System or Distribution System, the NSW Pool Coefficient determined by the Tribunal in accordance with the Compliance Rule. For electricity supplied from a Distribution System rather than from a Transmission System, this is to be multiplied by Average Distribution Loss Factor set out in Table 4 of Schedule A to this Rule; or
  - for other energy sources, the Carbon Dioxide Emissions Factor for that Energy Source and its Application/Usage set out in **Table 2** of Schedule A to this Rule or another value acceptable to the Scheme Administrator.

Step (3) Calculate *Number of NGACs* (in t CO_2-e) for each time period T_a by reference to which the Abator seeks to create NGACs:

If $\sum\limits_{S}$ Emissions Abated$_s \geq 0$:

Number of NGACs = $\sum\limits_{S}$ Emissions Abated$_s$

or

If $\sum\limits_{S}$ Emissions Abated$_s < 0$:

Number of NGACs = 0

10.6   Baseline unaffected by output

Note: This Metered Baseline Method is most appropriate where consumption is not linked to output. For example, schools and swimming pools.

Number of NGACs may be calculated using **Method 2**, provided that

(a) the consumption of all energy sources for the Site is independent of output; and

(b) the *Energy Baseline* is calculated using data from periods immediately preceding the Implementation Date of the Demand Side Abatement Project, to a maximum duration of 5 years, but after 1 January 1997, and excluding any periods that are not representative of long term Site consumption due to factors including plant shutdown or major maintenance. Where this is not possible, due to data unavailability or other reasons, a baseline may be set using other periods acceptable to the Scheme Administrator.

Method 2

Step (1)

Select a *Measurement Period* acceptable to the Scheme Administrator, that will be the duration of time over which all measurements in this Method will be taken and that is:

(a) a minimum of one day and a maximum of one year; and

(b) if there is a regular cycle to the consumption of energy sources on the Site, an integer multiple of the period of that cycle.

Step (2) Determine *Emissions Abated$_s$* for each energy source, S, affected by the Demand Side Abatement Project by repeating Steps (2A) to (2E) for each energy source, and for each time period T_a by reference to which the Abator seeks to create NGACs by repeating Steps (2C) to (3) for each such period.

Step (2A) Calculate *Energy Baseline* (in MWh or GJ):

$$\left\{ \sum_{T=1}^{n} \text{Total Consumption}_{Tb} \right\} / n$$

Where:

- *Tb* denotes a time period, before the Implementation Date of the Demand Side Abatement Project, the duration of which is equal to the Measurement Period, and where each time period is mutually exclusive with each other such time period
- *Total Consumption$_{Tb}$* (in MWh or GJ) is the consumption of energy source, S, for the Site measured by metering that consumption over each time periods Tb
- *n* is the number of time periods, Tb, where *n* must be at least 1

Step (2B) Calculate *Baseline Variability*(in MWh or GJ), which is the variance in the baseline, as:

where n > 1:

Baseline Variability = (Maximum Total Consumption$_{Tb}$ – Minimum

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Total Consumption$_{Tb}$) / 2

where n =1:

Baseline Variability = 10% of Energy Baseline

Where:

- *Maximum Total Consumption$_{Tb}$* is the value for Total Consumption$_{Tb}$ that is the greatest of all *n* time periods *Tb*
- *Minimum* Total *Consumption$_{Tb}$* is the value for Total Consumption$_{Tb}$ that is the lowest of all *n* time periods *Tb*
-

Step (2C) Calculate *Reduced Energy Consumption* (in MWh or GJ) for each time period T$_a$ by reference to which the Abator seeks to create NGACs:

Energy Baseline - Total Consumption$_{Ta}$

Where:

- *Ta* denotes a time period, after the Implementation Date of the Demand Side Abatement Project, the duration of which is equal to the Measurement Period
- *Total Consumption$_{Ta}$* (in MWh or GJ) is the consumption of energy source, S, for the Site measured by metering that consumption over a time period Ta

Step (2D) Calculate *Confidence Factor*:

Confidence Factor = 1 - (Baseline Variability / Energy Baseline)

Step (2E) Calculate *Emissions Abated$_s$* (in t CO$_2$-e) for each time period T$_a$ by reference to which the Abator seeks to create NGACs:

Reduced Energy Consumption x Confidence Factor x Emissions Coefficient$_s$

Where:

- *Emissions Coefficient$_s$* is:

  - for electricity supplied from a Transmission System or Distribution System, the NSW Pool Coefficient determined by the Tribunal in accordance with the Compliance Rule. For electricity supplied from a Distribution System rather than from a Transmission System, this is to be multiplied by Average Distribution Loss Factor set out in Table 4 of Schedule A to this Rule; or

  - for other energy sources, the Carbon Dioxide Emissions Factor for that Energy Source and its Application/Usage set out in

Table 2 of Schedule A to this Rule or another value acceptable to the Scheme Administrator.

Step (3) Calculate *Number of NGACs* (in t CO_2-e) for each time period T_a by reference to which the Abator seeks to create NGACs:

If $\sum\limits_{S}$ Emissions Abated$_s \geq 0$:

Number of NGACs $= \sum\limits_{S}$ Emissions Abated$_s$

or

If $\sum\limits_{S}$ Emissions Abated$_s < 0$:

Number of NGACs $= 0$

10.7   Normalised baselines

Note: This Metered Baseline Method normalises energy consumption for a Site to remove explainable variation from the baseline. For example, adjusting for variations in ambient conditions or variations in input characteristics. The factors chosen for the normalisation must cause the variability that is removed and not be the result of spurious correlations.

Option C of the International Performance Measurement and Verification Protocol can be used for guidance as to the normalisation of baselines, particularly for complex cases.

Number of NGACs may be calculated using **Method 3**, provided that

(a)   the *Normalisation Variables* in respect of which the *Total Consumption* is normalised are variables corresponding to factors that are a reason for change in *Total Consumption*; and

(b)   the *Normalised Energy Baseline* is calculated using data from periods immediately preceding the Implementation Date of the Demand Side Abatement Project, to a maximum duration of 5 years, but after 1 January 1997, and excluding any periods that are not representative of long term Site consumption due to factors including plant shutdown or major maintenance. Where this is not possible, due to data unavailability or other reasons, a baseline may be set using other periods acceptable to the Scheme Administrator.

Method 3

Step (1)

Select a *Measurement Period* acceptable to the Scheme Administrator, that will be the duration of time over which all measurements in this Method will be taken and that is:

(a)   a minimum of one day and a maximum of one year; and

(b)   if there is a regular cycle to the consumption of energy sources on the Site, an

integer multiple of the period of that cycle.

Step (2) Determine *Emissions Abated$_s$* for each energy source, S, affected by the Demand Side Abatement Project by repeating Steps (2A) to (2F) for each energy source, and for each time period T_a by reference to which the Abator seeks to create NGACs by repeating Steps (2D) to (3) for each such period. .

Step (2A) Calculate *Normalised Consumption$_{Tb}$* (in MWh or GJ) for *n* time periods *Tb* by normalising the Total Consumption$_{Tb}$ to determine the consumption that would have occurred for period Tb had the conditions at time Ta existed, using:

(a)   a set of normalisation coefficients, which are one or more coefficients calculated to account for the variation in Total Consumption$_{Tb}$ per unit of change for each corresponding Normalisation Variable used in (b); and

(b)   a set of values, which are the difference between the values of the Normalisation Variables for each time period Tb, and the values of the Normalisation Variables for one time period Ta, determined by measurements or other data sources.

Where:

- *Tb* denotes a time period, before the Implementation Date of the Demand Side Abatement Project, the duration of which is equal to the Measurement Period, and where each time period is mutually exclusive with each other such time period
- *Ta* denotes a time period, after the Implementation Date of the Demand Side Abatement Project, the duration of which is equal to the Measurement Period
- *Total Consumption$_{Tb}$* (in MWh or GJ) is the consumption of energy source, S, for the Site measured by metering that consumption over each time period Tb
- *n* is the number of time periods, Tb, where *n* must be at least 1
- *Normalisation Variables* are the variables in respect of which the Total Consumption$_{Tb}$ is normalised and must correspond to factors that are a reason for change in Total Consumption$_{Tb}$

Step (2B) Calculate *Normalised Energy Baseline*(in MWh or GJ):

$$\{\sum_{T=1}^{n} \textit{Normalised Consumption}_{Tb}\} / n$$

Step (2C) Calculate *Baseline Variability* (in MWh or GJ), which is the unexplained variance in the baseline, as:

where n > 1:

Baseline Variability = (Maximum Normalised Consumption$_{Tb}$ − minimum Normalised Consumption$_{Tb}$) / 2

where n =1:

Baseline Variability = 10% of Normalised Energy Baseline

Where:

- Maximum *Normalised Consumption$_{Tb}$* is the value for Normalised Consumption$_{Tb}$ that is the greatest of all *n* time periods *Tb*
- Minimum *Normalised Consumption$_{Tb}$* is the value for Normalised Consumption$_{Tb}$ that is the lowest of all *n* time periods *Tb*
- Step (2D) Calculate *Reduced Energy Consumption* (in MWh or GJ) for each time period T_a by reference to which the Abator seeks to create NGACs:

Normalised Energy Baseline - Total Consumption $_{Ta}$

Where:

- *Ta* denotes a time period, after the Implementation Date of the Demand Side Abatement Project, the duration of which is equal to the Measurement Period
- *Total Consumption$_{Ta}$* (in MWh or GJ) is the consumption of energy source, S, for the Site measured by metering that consumption over a time period Ta

Step (2E) Calculate *Confidence Factor*:

Confidence Factor = 1 - (Baseline Variability / Normalised Energy Baseline)

Step (2F) Calculate *Emissions Abated$_s$* (in t CO_2-e) for each time period T_a by reference to which the Abator seeks to create NGACs:

Reduced Energy Consumption x Confidence Factor x Emissions Coefficient$_s$

Where:

- *Emissions Coefficient$_s$* is:

    - for electricity supplied from a Transmission System or Distribution System, the NSW Pool Coefficient determined by the Tribunal in accordance with the Compliance Rule. For electricity supplied from a Distribution System rather than from a Transmission System, this is to be multiplied by Average Distribution Loss Factor set out in Table 4 of Schedule A to this Rule; or

    - for other energy sources, the Carbon Dioxide Emissions Factor for that Energy Source and its Application/Usage set out in **Table 2** of Schedule A to this Rule or another value acceptable

to the Scheme Administrator.

Step (3) Calculate *Number of NGACs* (in t CO_2-e) for each time period T_a by reference to which the Abator seeks to create NGACs:

If $\sum_{S}$ Emissions Abated$_s \geq 0$:

$$\textit{Number of NGACs} = \sum_{S} \textit{Emissions Abated}_s$$

or

If $\sum_{S}$ Emissions Abated$_s < 0$:

$$\textit{Number of NGACs} = 0$$

10.8 **Office Building Australian Building Greenhouse Rating Scheme baseline**

Note: This Metered Baseline Method is one acceptable method for normalising baselines for New or Existing Office Buildings.

Number of NGACs may be calculated using **Method 4** only for New or Existing Office Buildings.

Method 4

Step (1)

The *Measurement Period* is the duration of time over which all measurements in this Method will be taken and is twelve months.

Step (2) *Normalised Emissions Baseline* (in kg CO_2-e / m^2) is:

(a)   for a New Office Building, the normalised emissions per unit of area that is the lesser of:

(i)   the threshold for achieving an ABGR 4 star rating; or

(ii)   the minimum ABGR rating required for the Office Building by a consent authority, as that term is defined in the *Environmental Planning and Assessment Act 1979*,

corrected to use instead of the ABGR default emission factor, the NSW Pool Coefficient determined by the Tribunal in accordance with the Compliance Rule. For electricity supplied from a Distribution System rather than from a Transmission System, this is to be multiplied by Average Distribution Loss Factor set out in Table 4 of Schedule A to this Rule; or

(b)   for an Existing Office Building, calculated as

$$\{ \sum_{T=1}^{n} \textit{Normalised Emissions}_{Tb} \} \, / \, \text{n}$$

Where:

- *Tb* denotes a time period, before the Implementation Date of a Demand Side Abatement Project, the duration of which is equal to the Measurement Period, and where each time period is mutually exclusive with each other such time period
- *Normalised Emissions$_{Tb}$* (in kg CO_2-e / m^2) is for the Site the normalised emissions per unit of area, over mutually exclusive time periods, Tb, before the Implementation Date of the Demand Side Abatement Project, determined under the ABGR modified to use:
  - for all electricity supplied from a Transmission System or Distribution System including Green Power as that term is used in the National Green Power Accreditation Program, the NSW Pool Coefficient determined by the Tribunal in accordance with the Compliance Rule. For electricity supplied from a Distribution System rather than from a Transmission System, this is to be multiplied by Average Distribution Loss Factor set out in Table 4 of Schedule A to this Rule; or
  - for other energy sources, the Carbon Dioxide Emissions Factor for that Energy Source and its Application/Usage set out in **Table 2** of Schedule A to this Rule or another value acceptable to the Scheme Administrator.
- *n* is the number of time periods, Tb, before Demand Side Abatement, and *n* must be at least 1.

Step (3) *Baseline Variability*, which is the unexplained variance in the baseline, is:

(a)   for a New Office Building, 0; or

(b)   for an Existing Office Building, calculated as:

where n > 1:

Baseline Variability = (Maximum Normalised Emissions$_{Tb}$ – Minimum Normalised Emissions$_{Tb}$) / 2

where n =1:

Baseline Variability = 5% of Normalised Emissions Baseline

Where:

- *Maximum Normalised Emissions$_{Tb}$* is the value for Normalised Emissions$_{Tb}$ that is the greatest of all *n* time periods *Tb*
- *Minimum Normalised Emissions$_{Tb}$* is the value for Normalised Emissions$_{Tb}$ that is the lowest of all *n* time periods *Tb*

Step (4) Calculate the *Emissions Abated* as:

Normalised Emissions Baseline - Normalised Emissions$_{Ta}$

Where:

- *Emissions Abated* is in kg CO_2-e / m^2

- *Normalised Emissions$_{Ta}$* (in kg CO_2-e / m^2) is for the Site the normalised emissions per unit of area, for a time period Ta after Demand Side Abatement and the duration of which is equal to the Measurement Period, determined under the ABGR modified to use:

  - for all electricity supplied from a Transmission System or Distribution System including Green Power as that term is used in the National Green Power Accreditation Program, the NSW Pool Coefficient determined by the Tribunal in accordance with the Compliance Rule. For electricity supplied from a Distribution System rather than from a Transmission System, this is to be multiplied by Average Distribution Loss Factor set out in Table 4 of Schedule A to this Rule; or

  - for other energy sources, the Carbon Dioxide Emissions Factor for that Energy Source and its Application/Usage set out in **Table 2** of Schedule A to this Rule or another value acceptable to the Scheme Administrator.

Step (5) Calculate *Confidence Factor*:

Confidence Factor = 1 - (Baseline Variability / Normalised Emissions Baseline)

Step (6) Calculate *Number of NGACs* (in t CO_2-e):

If Emissions Abated $\geq$ 0:

Number of NGACs = Emissions Abated x Net Lettable Area$_{Ta}$ x (Gross Emissions$_{Ta}$ / Normalised Emissions$_{Ta}$) x Confidence Factor / 1000

or

If Emissions Abated x Net Lettable Area$_{Ta}$ x (Gross Emissions$_{Ta}$ / Normalised Emissions$_{Ta}$) x Confidence Factor < 0:

Number of NGACs = 0

Where:

- *Net Lettable Area$_{Ta}$* (in m^2) is the occupied net lettable area of the building determined in accordance with the ABGR for the period Ta

- *Gross Emissions$_{Ta}$* (in kg CO_2-e / m^2) is the uncorrected Greenhouse Gas emissions for the period Ta

11   Default Abatement Factors Method

Note: The Default Abatement Factors Method can be used for the installation of common equipment such as refrigerators and certain electric motors. A program of multiple installations of the same type is considered a single Demand Side Abatement Project.

11.1   The Default Abatement Factors Method in this clause 11 may only be used to calculate *Number of NGACs* if the Installation is listed in **Table 1**

Note: The Default Abatement Factors in Table 1 take account of failures or removal of an item after the Implementation Date and before the end of its normal service life.

11.2   Using the Default Abatement Factors Method, *Number of NGACs* is calculated using **Equation 3**.

11.3   Where *Number of NGACs* is calculated using the Default Abatement Factors Method in this clause 11, the Demand Side Abatement that is the subject of that calculation is deemed to have taken place (for the purpose of the entitlement to create NGACs but not for any other purpose) on the later of: .

(a)   1 January 2003; and

(b)   the Implementation Date of the relevant Installation or Installations.

Equation 3

Number of NGACs = Number of Installations x Abatement Factor x Installation Discount Factor

Where:

- *Number of NGACs* is in t CO_2-e
- *Number of Installations* is the quantity of a certain type of Installation that has been installed
- *Abatement Factor* is the Default Emissions Abatement Factor corresponding to that type of Installation in **Table 1** of Schedule A to this Rule
- *Installation Discount Factor* is a factor to be applied to take account of the risk that under a particular program design some items may not be installed, and is:
  - 1.0, if the Scheme Administrator is satisfied that the Installation or Installations have been installed, which may be on the basis of a written statement from an appropriately trained person who performed the installation or contractor invoices; or
  - 0.9, if the Scheme Administrator is satisfied that the Installation or Installations have been sold for the purposes of being installed, but does not have sufficient evidence to be satisfied that the Installations have been installed; or
  - 0.8, if the Scheme Administrator is satisfied that a person has taken

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possession of the Installation or Installations for the purposes of being installed, but does not have sufficient evidence to be satisfied that the Installations have been sold or installed; or

- another value determined using a methodology approved by the Scheme Administrator.

- In this Equation, a reference to the risk of an item not being installed means the risk of the item not being installed either at all or in New South Wales.

12   Generation Emissions

> Note: Where part of the electricity generated is exported into the NSW Electricity Network or an interconnected Transmission or Distribution System, and part is consumed by End-User Equipment within the same End-User Complex as the Generating System, only that part that is so consumed is eligible to create NGACs under this Rule. The remainder is separately eligible to create NGACs under the Generation Rule.

12.1   The Generation Emissions Method in this clause 12 may only be used to calculate *Number of NGACs* to the extent that the electricity generated by a Generating System is supplied to End-User Equipment within the same End-User Complex as the Generating System.

12.1A   For the purposes of clause 12.1, electricity generated by a Generating System will be taken to be supplied within the same End-User Complex as the Generating System to the extent that the electricity is not exported into the NSW Electricity Network or a Transmission or Distribution System interconnected with the NSW Electricity Network, regardless of whether or not the owner of the Generating System also owns the relevant End-User Equipment.

12.2   Using the Generation Emissions Method, *Number of NGACs* is calculated using **Equation 4**.

Equation 4

Number of NGACs = Eligible Generation x (NSW Pool Coefficient x Emissions Intensity Adjustment Factor – Emissions Intensity)

Where:

- *Number of NGACs* is in t CO_2-e and is in respect of the time period over which the Eligible Generation occurs
- *Eligible Generation* (in MWh) is calculated in **Equation 5**
- *NSW Pool Coefficient* is the NSW Pool Coefficient determined by the Tribunal using clause 9.1 of the Compliance Rule for the year in which the electricity was generated
- *Emissions Intensity* (in t/MWh) is calculated using **Equation 6**
- *Emissions Intensity Adjustment Factor* is the value in Table 9 of Schedule A to the Generation Rule appropriate to the Generating System being connected at an End-User Complex

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Equation 5

Eligible Generation = Self Generated Site Use - RECs Created/MLF x (Self Generated Site Use / Sent Out Generation)

Where:

- *Eligible Generation* is in MWh is in MWh and is in respect of a calendar year or part thereof
- *Self Generated Site* Use (in MWh) is the portion of the electricity generated by the Generating System that is consumed End-User Equipment within the same End-User Complex as the Generating System, determined by:
  - metered electricity generated by the Generating System where this is available; or
  - calculating the reduction in electricity supplied by the NSW Electricity Network by either the Project Impact Assessment Method in clause 9 or the Metered Baseline Method in clause 10.
- *RECs Created* (in MWh) are the number of RECs created and registered with ORER in accordance with the RE(E) Act in respect of the same electricity generation by the Generating System that constituted the *Sent Out Generation*
- *Sent Out Generation* (in MWh), in respect of the Generating System, is Gross Generation less Auxiliary Electricity Use, both measured over the same time period as the Total Greenhouse Gas Emissions. If this metered information is not available it may be determined by calculating the reduction in electricity supplied by the NSW Electricity Network by either the Project Impact Assessment Method in clause 9 or the Metered Baseline Method in clause 10
- *Gross Generation* means total electricity generated by a Generating System
- *Auxiliary Electricity Use* means electricity consumed by the Generating System
- *MLF* is the marginal loss factor for the Generating System, as defined in the RE(E) Regulation

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Equation 6

Emissions Intensity = Total Greenhouse Gas Emissions / Sent Out Generation

Where:

- *Emissions Intensity* is in t CO_2-e/MWh
- *Total Greenhouse Gas Emissions* (in t CO_2-e) is determined using clause 10 of the Generation Rule, in respect of the time period over which the Eligible Generation occurs
- *Sent Out Generation* (in MWh) is, in respect of the Generating System, Gross Generation less Auxiliary Electricity Use, both measured over the same time period as the Total Greenhouse Gas Emissions. If this metered information is not available, it may be determined by calculating the reduction in electricity supplied by the NSW Electricity Network by either the Project Impact Assessment Method in clause 9 or the Metered Baseline Method in clause 10
- *Gross Generation* means total electricity generated by a Generating System
- *Auxiliary Electricity Use* means electricity consumed by the Generating System

12.3   Using the Generation Emissions Method, in addition to the number of NGACs in clause 12.2, the Abator may create NGACs from that portion of electricity which is used within the same End-User Complex which is:

(a)   generated using landfill gas or sewage gas or cogeneration from renewable sources according to, and as if it were the Generator referred to in clause 9.5 of the Generation Rule; or

(b)   from cogeneration according to clause 10.2 of the Generation Rule, or if the benefit from the heat is in the form of electricity avoided, from cogeneration according to the Project Impact Assessment Method under this Rule.

13   Definitions and Interpretation

13.1   In this Rule:

"ABGR" means the Australian Building Greenhouse Rating Scheme Methodology.

"Act" means the *Electricity Supply Act 1995*.

"Benchmark Rules" means the rules under Part 8A, Division 11 of the Act.

"Compliance Rule" means *Greenhouse Gas Benchmark Rule (Compliance) No. 1 of 2003*.

"Demand Side Abatement" has the meaning given to it in clause 7.

"**Demand Side Abatement Project**" has the meaning given to it in clause 7.

"Distribution System" is a "distribution system" (as that term is defined in the National Electricity Code) which is registered under the National Electricity Code.

"Electricity Sales Foregone" has the meaning given to it under the Electricity Sales Foregone Framework.

"Electricity Sales Foregone Framework" means the methodology described in the document entitled *Greenhouse Gas Emissions from Electricity Supplied in NSW: Framework for Calculation of Electricity Sales Foregone,* published by the Ministry of Energy and Utilities in February 1999.

"Emissions Workbook" means the methodology described in the document entitled *Greenhouse Gas Emissions from Electricity Supplied in NSW: Emissions Workbook* published by the Ministry of Energy and Utilities in October 2000.

"End-User Complex" is as described in clause 12.1A.

"End-User Equipment" means electricity consuming equipment that is not associated with the generation of electricity or generated ancillary loads.

"Existing Office Building" means an Office Building which was first occupied prior to 1 January 2002.

"Fossil Fuel" means coal seam gas drained from mines as an integrated part of coal mining operations, black coal, brown coal, natural gas, fuels derived from petroleum, or coal seam methane.

"Generation Rule" means *Greenhouse Gas Benchmark Rule (Generation) No. 2 of 2003*

"Generating System" means a system comprising one or more of the physical generators of electricity and all the related equipment capable of functioning as a single entity.

"GGAP" means the Greenhouse Gas Abatement Program administered by the Australian Greenhouse Office of the Commonwealth.

"Implementation Date" means the date on which the reduction in greenhouse gas emissions resulting from a project commences. In the case of a single Demand Side Abatement Project that involves multiple Installations or occurs across multiple Sites, it means the date on which the reduction in greenhouse gas emissions resulting from the first Installation or occurring at the first Site commences. In the case of an Installation where NGACs are calculated using the Default Abatement Factors method, it means the date on which the Installation was commissioned or reached practical completion, or, if a lesser Confidence Factor applies, the date on which the Installations are sold or receipt acknowledged.

"Installation" means energy consuming equipment, processes, or systems, including the equipment directly consuming energy, and other equipment that causes, controls or influences the consumption of energy, and includes (in the context of clause 10.8) a New Office Building.

"New Installation" means an Installations where no Installations of the same type, function, output or service was previously in its place (but does not include additional components installed in the course of modifying an Installation), and includes (in the context of clause 10.8) a New Office Building.

"New Office Building" means an Office Building which was first occupied on or after 1 January 2002.

"NGAC" (New South Wales Greenhouse Abatement Certificate) is a transferable abatement certificate under section 97F of the Act, which is created in accordance with the Generation Rule, Sequestration Rule, or this Rule.

"NSW Electricity Network" means all electricity Transmission Systems and Distribution Systems located in New South Wales..

"NSW Pool Coefficient" is defined in section 97AB of the Act and determined by the Tribunal under section 97BF of the Act, in accordance with clause 9.1 of the Compliance Rule. The relevant NSW Pool Coefficient for the purposes of this Rule is that for the year in which the abatement occurred.

"Office Building" means a Site that can be rated under the ABGR.

"ORER" means the Commonwealth Office of the Renewable Energy Regulator established under the RE(E) Act.

"Previous Rule" means the Greenhouse Gas Benchmark Rule (Demand Side Abatement) that commenced on 3 October 2003.

"REC" means a renewable energy certificate as defined in s 97AB of the Act.

"RECs Created" is defined in Equation 5.

"**RE(E) Act**" means the *Renewable Energy (Electricity) Act 2000* (Cth).

"**RE(E) Regulation**" means the *Renewable Energy (Electricity) Regulations 2001* (Cth).

"Regulations" means regulations made pursuant to Part 8A of the Act.

"Renewable Energy Source" means an eligible renewable energy source under the RE(E) Act."

"Scheme Administrator" is defined in section 97AB of the Act.

"Sequestration Rule" means *Greenhouse Gas Benchmark Rule (Carbon Sequestration) No.5 of 2003*.

"Site" means all End-User Equipment and Generating Systems for which the electricity consumed or supplied is measured by the same utility meter allocated a National Meter Identifier (NMI) under the National Electricity Code, or by other meters or logging devices measuring a part of this site, and approved by the Scheme Administrator (whether alone or in combination with the utility meter)..

> Note: Meters other than utility meters that measure part of the consumption of a Site can be used to "sub-meter" consumption related to Demand Side Abatement. In this case, the Site would become only that part of the Installation that has its consumption recorded by that meter, provided it meets the requirement of the Scheme Administrator.
>
> Meters other than "utility" meters (those allocated a NMI) can only be used to sub-meter loads within an individual Site, not aggregate several Sites.

"Total Greenhouse Gas Emissions" is defined in Equation 6.

"Transmission System" is a "transmission system" (as that term is defined in the National Electricity Code) which is registered under the National Electricity Code.

"Tribunal" has the meaning given to it under the Act.

13.2   Notes in this Rule do not form part of the Rule.

13.3   A reference in this Rule to an entitlement to create a number of NGACs is to be taken as an entitlement to create a lesser number of NGACs.

13.4   For the purpose of this Rule the terms and expressions used in this Rule have the same meaning as in the Act or as defined in Part 8A of the Act, except the terms that are expressly defined in this Rule.

13.5   A reference to accreditation in respect of a Demand Side Abatement Project means accreditation in respect of Demand Side Abatement from the Demand Side Abatement Project.

Schedule A – Default factors and supporting information

Table 1: Default Emissions Abatement Factors

Installation		Default Emissions Abatement Factors
Natural gas (or LPG) storage or instantaneous hot water system (not solar) replacing an existing electric hot water system (not solar)		20
Natural gas (or LPG) boosted solar hot water system replacing an electric hot water system (not solar). Additional NGACs for non-solar water heating (solar contribution is claimable as RECs)		6
Compact fluorescent lamp that has a manufacturer's rating of 8,000 hours or more		0.5
Compact fluorescent lamp that has a manufacturer's rating of 5,000 hours or more		0.3
Showerhead that has a AAA rating (that is consuming less than 9 L water / minute at a water pressure of 250 kPa), connected to a hot water system using electricity as its energy source		4.0
Showerhead that has a AAA rating (that is consuming less than 9 L water / minute at a water pressure of 250 kPa), connected to a hot water system for which the energy source is not known		3.1
Refrigerator / freezer	2.5 Star Rating	-
	3 Star Rating	-
	3.5 Star Rating	0.1
	4 Star Rating	0.6
	4.5 Star Rating	1.0
	5 Star Rating	1.4
	5.5 Star Rating	1.8
	6 Star Rating	2.5
Freezer	2.5 Star Rating	-
	3 Star Rating	0.7
	3.5 Star Rating	0.8
	4 Star Rating	0.9
	4.5 Star Rating	1.0
	5 Star Rating	1.1
	5.5 Star Rating	1.2
	6 Star Rating	1.3

Clothes washer	2.5 Star Rating	1.3
	3 Star Rating	1.6
	3.5 Star Rating	1.9
	4 Star Rating	2.2
	4.5 Star Rating	2.5
	5 Star Rating	2.9
	5.5 Star Rating	3.2
	6 Star Rating	3.5
Clothes drier	2.5 Star Rating	-
	3 Star Rating	0.3
	3.5 Star Rating	0.4
	4 Star Rating	0.6
	4.5 Star Rating	0.7
	5 Star Rating	0.9
	5.5 Star Rating	1.0
	6 Star Rating	1.2
Dishwasher	2.5 Star Rating	-
	3 Star Rating	-
	3.5 Star Rating	-
	4 Star Rating	0.1
	4.5 Star Rating	0.2
	5 Star Rating	0.3
	5.5 Star Rating	0.4
	6 Star Rating	0.5

In this Table:

"Star Rating" means the star rating under assigned under the National Appliance and Equipment Energy Efficiency Program

Table 2: Carbon Dioxide Emission Factors

Energy Source	Application / Usage	kt CO_2/ PJ
Coal	Coal used in public electricity generation (ASIC 3611)	92.0
	Coals used in steel industry	93.0
	Black coal used by other industry	90.0
	Brown coal used by industry	88.3
	Coke	119.5
	Coal by-products (gaseous)	37.0
	Coal by-products (coal tar and BTX)	81.0
	Brown coal briquettes	105.0
Petroleum	Liquefied petroleum gas (LPG)	59.4
	Naphtha	66.0
	Lighting kerosene	69.7
	Power kerosene	69.7
	Aviation gasoline	68.0
	Aviation turbine fuel	69.7
	Heating oil	69.7
	Fuel oil	73.6
	Automotive diesel oil (ADO)	69.7
	Industrial diesel fuel (IDF)	69.7
	Refinery fuel	68.1
	Other petroleum products	68.6
	Solvents	66.0
	Lubricants and greases	73.7
	Bitumen	80.7
Gaseous	Natural gas - NSW	50.8
	Natural gas - Victoria	51.0
	Natural gas - SA	50.8
	Natural gas - Queensland	51.1
	Natural gas - ACT	50.8
	Town gas (tempered LPG)	59.0
Biomass	Wood and wood waste (dry)	94.0
	Bagasse	96.8

Table 3a: Default Efficiencies

Application	Device type	Default Efficiency
Electric Water heating	Off peak	85%
	Continuous	90%
Electric Space heating	Resistance	100%
	Reverse cycle	280%
Electric Cooking	Hotplate	60%
	Oven	50%
Electric Industrial heat	Boiler	90%
Natural gas and LPG Water heating	Instantaneous	75%
	Storage	60%
Natural gas and LPG Space heating	Flued heater	70%
Wood space heating	Closed combustion	50%
	Open fire	20%
Natural gas and LPG Cooking	Burners	50%
	Oven	45%
Natural gas and LPG Industrial heat	Boiler	80%
Bagasse Industrial heat	Boiler	60%

Table 3b: Default Efficiency Improvements for High Efficiency Motors

Rating of HEM	Default lifetime (years)	Default efficiency improvement
High Efficiency Motor of less than 3 kW	7	8% of the annual electricity consumption of the motor
High Efficiency Motor of 3-7.5 kW	7	5% of the annual electricity consumption of the motor
High Efficiency Motor of 11-37 kW	7	2.5% of the annual electricity consumption of the motor
High Efficiency Motor of 45-90 kW	7	1.5% of the annual electricity consumption of the motor
High Efficiency Motor of 110-185 kW	7	1% of the annual electricity consumption of the motor

In this table:
"**High Efficiency Motor**" means a motor meeting the High Efficiency levels specified in
Australian Standard / New Zealand Standard 1359.5

Table 3c: Default loss savings from Power Factor Correction at end-user's premises

Size of PFC installation covered by this default formula	Default lifetime (years)	Annual energy saving
Power Factor Correction of less than 1000 kVAr installed at an End-User Complex	7	0.06 MWh pa per kVAr installed

Table 4: Average Distribution Loss Factor

Average Distribution Loss Factor
1.058

Note: This is the weighted average of distribution losses for the NSW Distribution System. Transmission losses are already included in the NSW Pool Coefficient determined by the Tribunal in accordance with the Compliance Rule, and no further adjustment is required for Installations connected to the Transmission System.